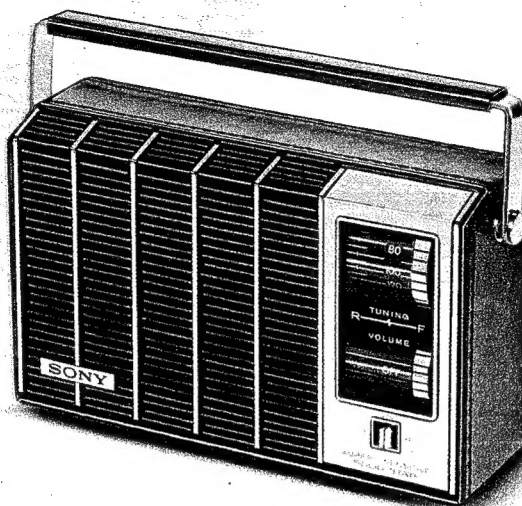


TR-6400



Set using ISO screws

SPECIFICATIONS

- Circuit System:** 9-transistor, 1-diode superheterodyne
- Frequency Coverage:** 530 ~ 1,605 kHz (566 ~ 187 m)
- Intermediate Frequency:** 455 kHz
- Antenna System:** built-in ferrite bar antenna
- Sensitivity:** 28 μ V/m (29 dB/m)
- Selectivity:** 22 dB at ± 10 kHz off-resonance at 1,000 kHz
- Output Power:** 900 mW maximum
- Current Drain**
at no signal: 13 mA
at maximum output: 340 mA
- Power Requirements:** 4.5 V DC, 3 size "D" flashlight batteries or 110 ~ 120 V AC house current with SONY AC Adaptor AC-33 W or 220 ~ 240 V AC house current with SONY AC Adaptor AC-33 E
- Dimensions:** 9 $\frac{1}{4}$ " (W) x 7 $\frac{1}{16}$ " (H) x 3" (D)
235 mm (W) x 138 mm (H) x 75 mm (D)
- Weight:** 2 lb 10 oz (1.18 kg)











SONY®

SERVICE MANUAL

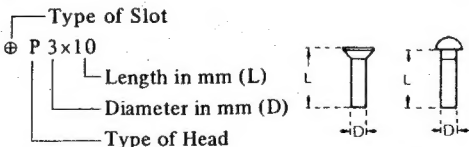
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Hardware Nomenclature

P — Pan Head Screw 	SC — Set Screw 
PS — Pan Head Screw with Spring Washer 	E — Retaining Ring (E Washer) 
K — Flat Countersunk Head Screw 	W — Washer
B — Binding Head Screw 	SW — Spring Washer
RK — Oval Countersunk Head Screw 	LW — Lock Washer
T — Truss Head Screw 	N — Nut
R — Round Head Screw 	
F — Flat Fillister Head Screw 	

Example



When ordering replacement parts, you should use **PART NUMBER** listed on the Parts List or shown in the **EXPLODED VIEW**.
The reference number should not be used for ordering purposes.

SECTION 1

OUTLINE

1-1. BLOCK DIAGRAM

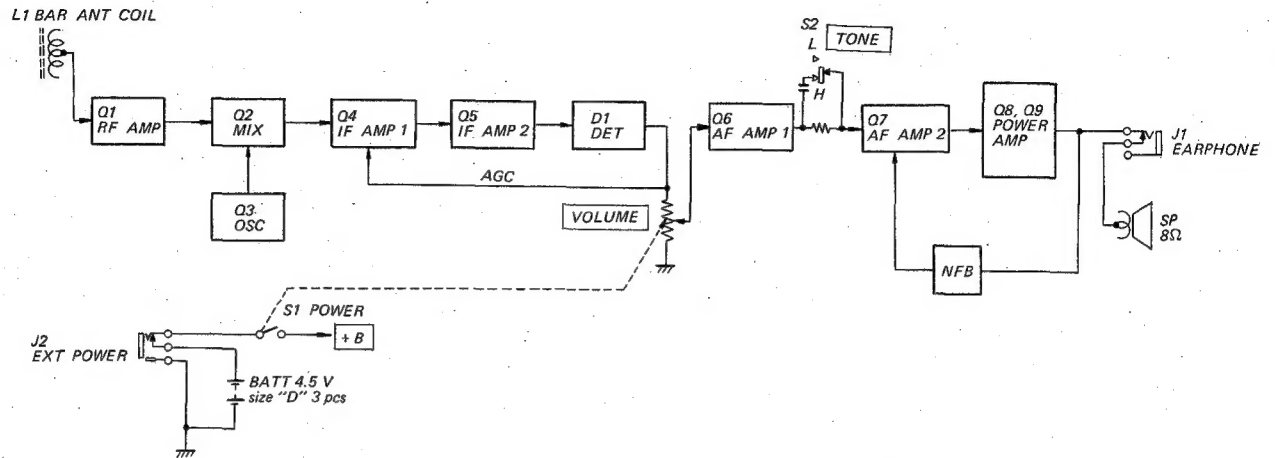


Fig. 1-1.

1-2. INTERNAL VIEW

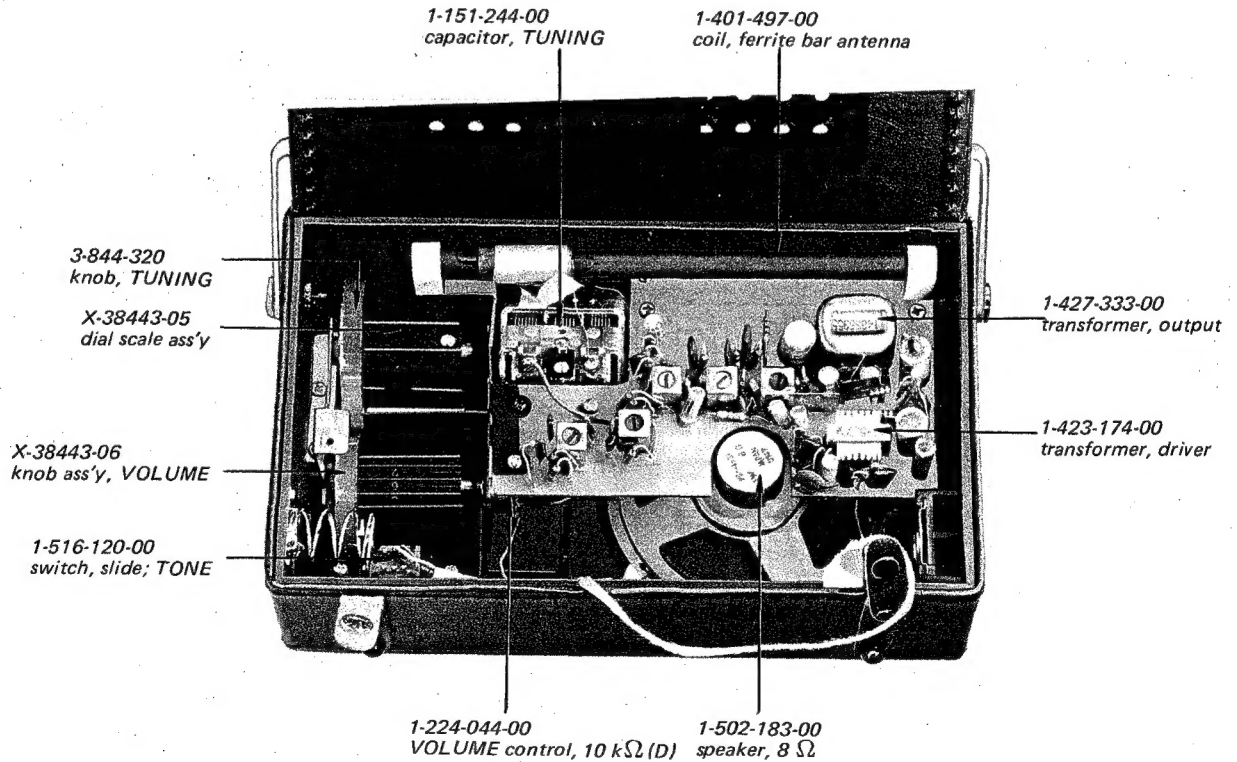


Fig. 1-2. Internal View

SECTION 2 DISASSEMBLY

2-1. CHASSIS REMOVAL

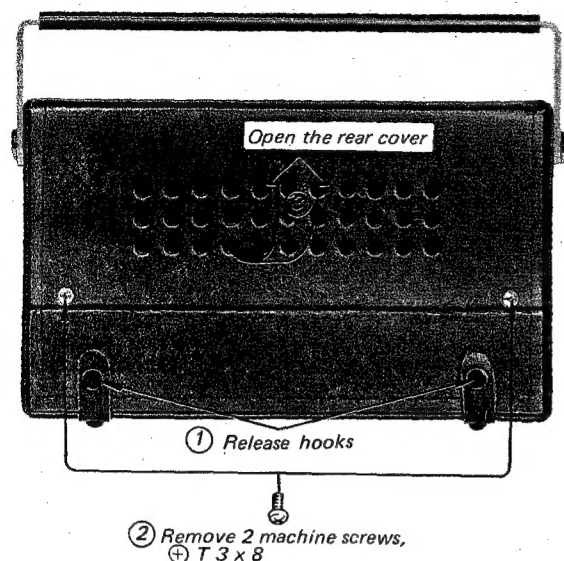


Fig. 2-1.

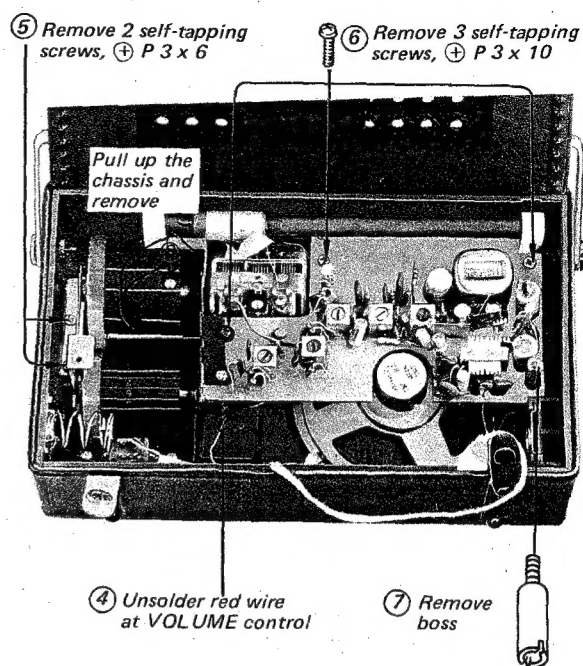


Fig. 2-2.

2-2. DIAL SCALE ASS'Y AND VOLUME KNOB ASS'Y INSTALLATION

1. Dial Scale Ass'y Installation

- Set the TUNING capacitor to its maximum capacitance position (fully meshed).
- Install the dial scale ass'y on the shaft of the TUNING capacitor.
- Adjust the dial scale ass'y setting position so that the "53" mark on the scale just faces forward when viewed from the conductor side of the printed circuit board as shown in Fig. 2-3.
- Fix the ass'y with the machine screw.

2. VOLUME Knob Ass'y Installation

- Set the VOLUME control to its off position (fully counter clockwise).
- Install the VOLUME knob ass'y on the shaft of the VOLUME control so that the "OFF" mark on the knob ass'y just faces forward when viewed from the conductor side of the printed circuit board as shown in Fig. 2-3.

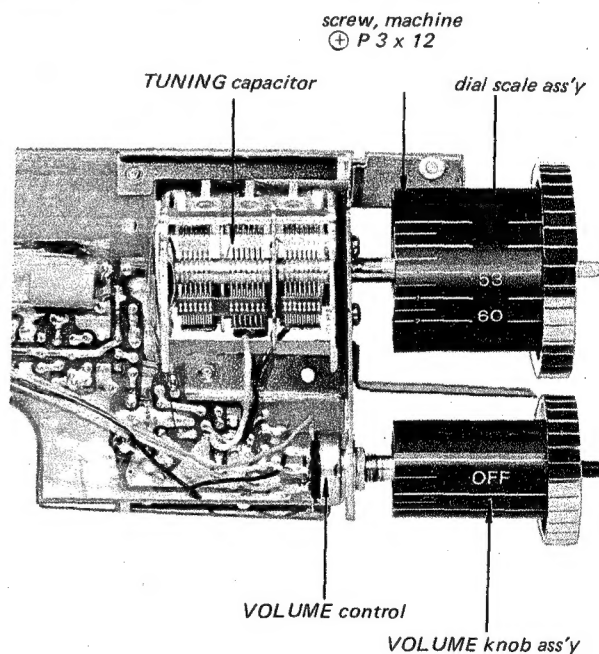


Fig. 2-3.

SECTION 3 CIRCUIT ADJUSTMENTS

3-1. TEST EQUIPMENT/TOOLS REQUIRED

- * AM rf signal generator
- * Loop antenna
- * VTVM
- * 8 Ω resistor
- * Alignment screwdriver

Preparation:

Rf signal generator modulation:
400 Hz, 30 % AM
Rf signal generator output level:
Usable lowest possible
VOLUME control setting: Maximum
Test setup: See Fig. 3-1

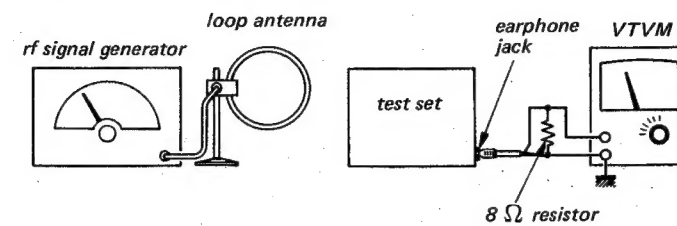


Fig. 3-1. I-f alignment, frequency coverage and tracking adjustment setup.

3-2. I-F ALIGNMENT

Rf Signal Generator Coupling	Rf Signal Generator Frequency	VTVM Connection	Adjust	Remarks
Loop antenna See Fig. 3-1.	455 kHz (1 kHz, 30 % AM modulation)	To EARPHONE jack as shown in Fig. 3-1	Cores of IFT - 1 IFT - 2 IFT - 3 See Fig. 3-2	TUNING knob setting: at no signal, no noise position. Adjust for maximum meter reading. Repeat the adjustment two or three times.

3-3. FREQUENCY COVERAGE AND TRACKING ADJUSTMENT

Adjustment	Rf Signal Generator Coupling	Rf Signal Generator Frequency	Receiver Pointer Setting	Adjust	Remarks
Frequency Coverage	Loop antenna See Fig. 3-1	520 kHz	Minimum frequency	Core of osc coil L3	Adjust for maximum meter reading. Repeat adjustment two or three times ending with CT3, CT1 and CT2. Fix L1 with wax after adjustment.
		1,680 kHz	Maximum frequency	Osc trimmer CT3	
Tracking		620 kHz	Tune in 620 kHz signal	Position of ant coil L1 Core of rf coil L2	
		1,400 kHz	Tune in 1,400 kHz signal	Ant trimmer CT1 Rf trimmer CT2	

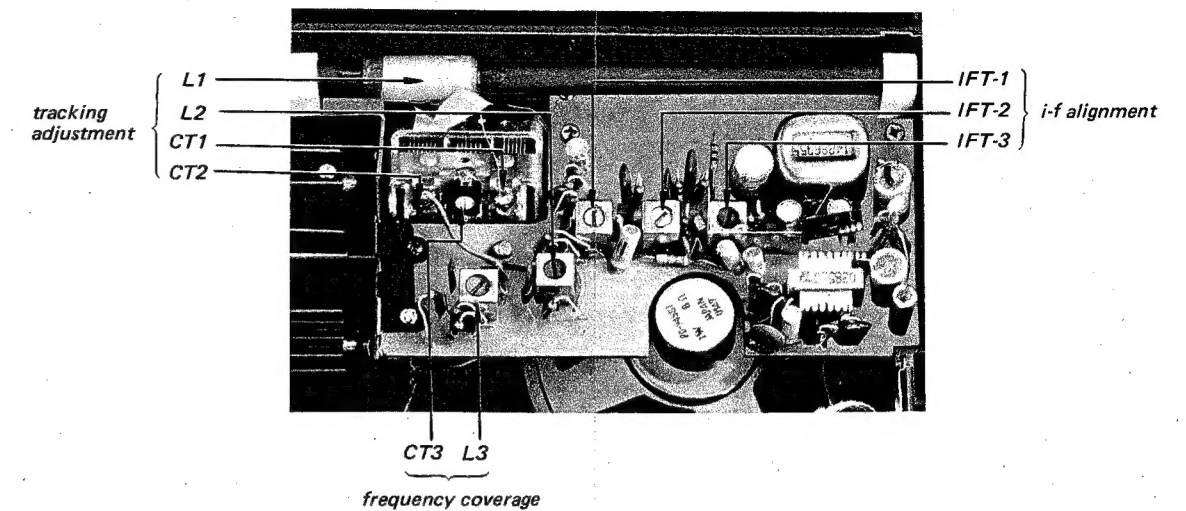
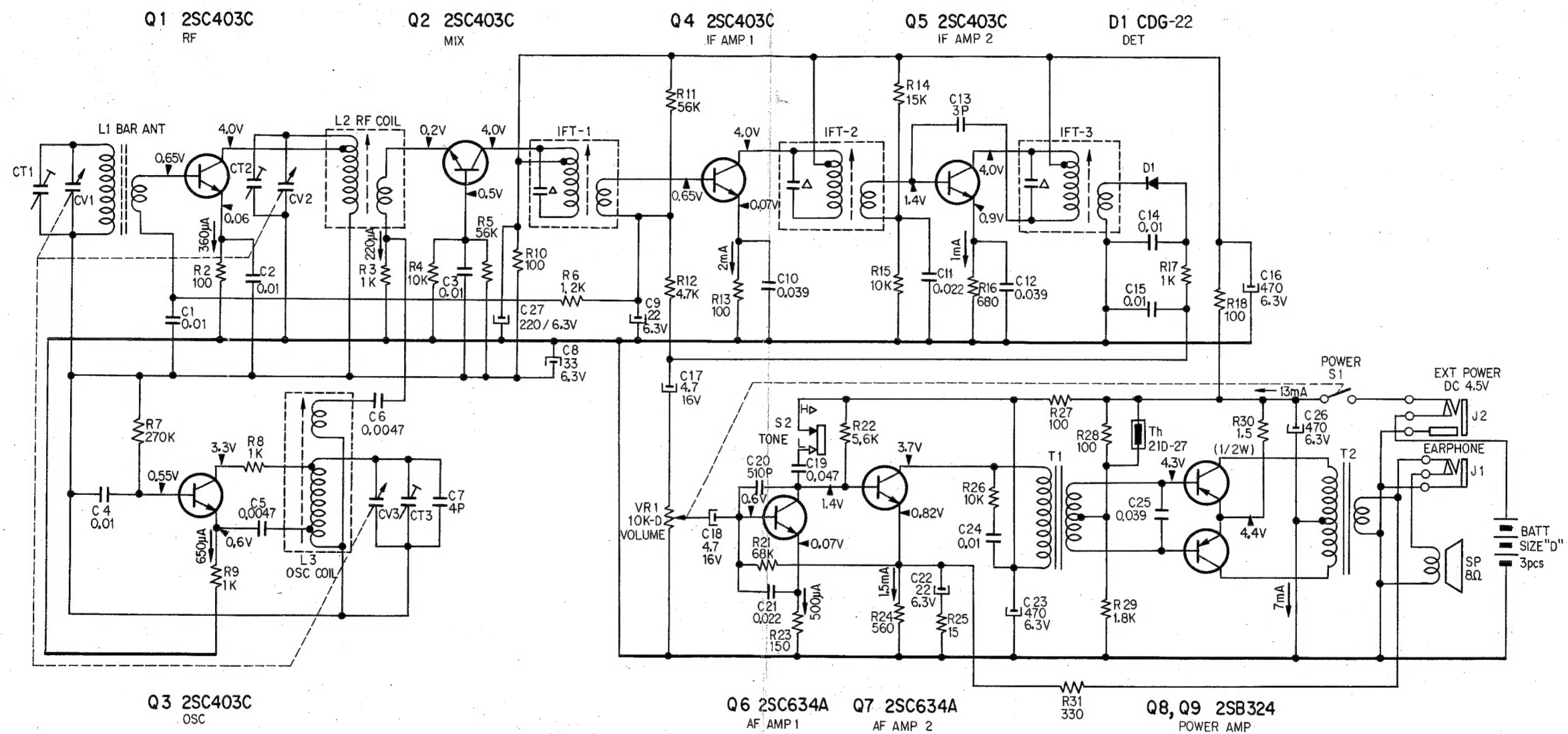


Fig. 3-2. Adjustment locations

SECTION 4

SCHEMATIC AND MOUNTING DIAGRAMS

4-1. SCHEMATIC DIAGRAM



Note:

1. All resistors are in Ω , 1/4 W, $\pm 5\%$ and capacitors are in μF unless otherwise specified.
2. Voltage readings are taken with a 20 k Ω /V DC voltmeter at no input signal with reference to battery negative terminal. Variations may be noted under normal production tolerances.
3. Capacitors marked Δ are built in i-f transformers.

Fig. 4-1.

4-2. MOUNTING DIAGRAM
—Conductor Side—

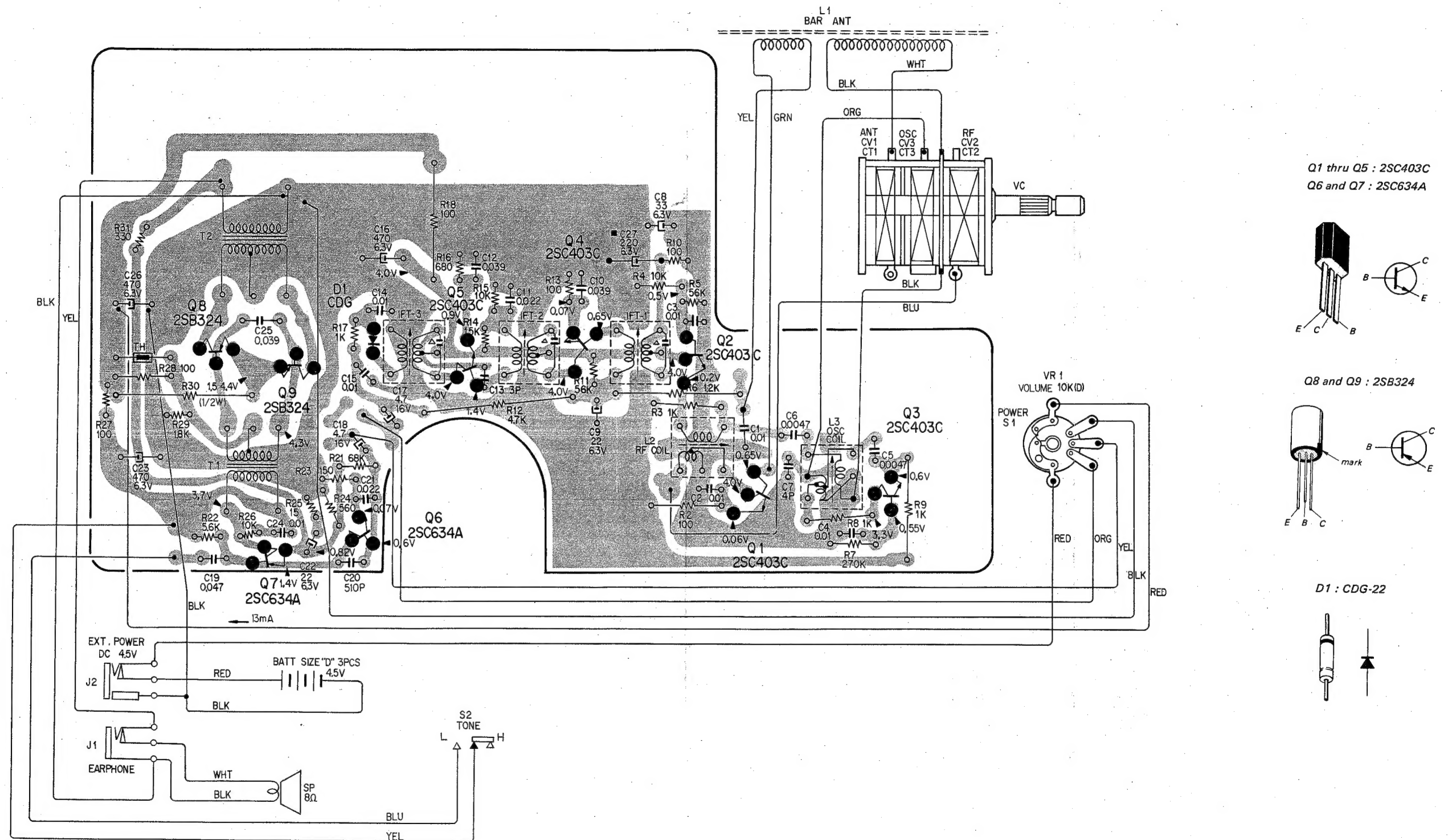


Fig. 4-2.

SECTION 5

EXPLODED VIEW AND PACKING

5-1. EXPLODED VIEW

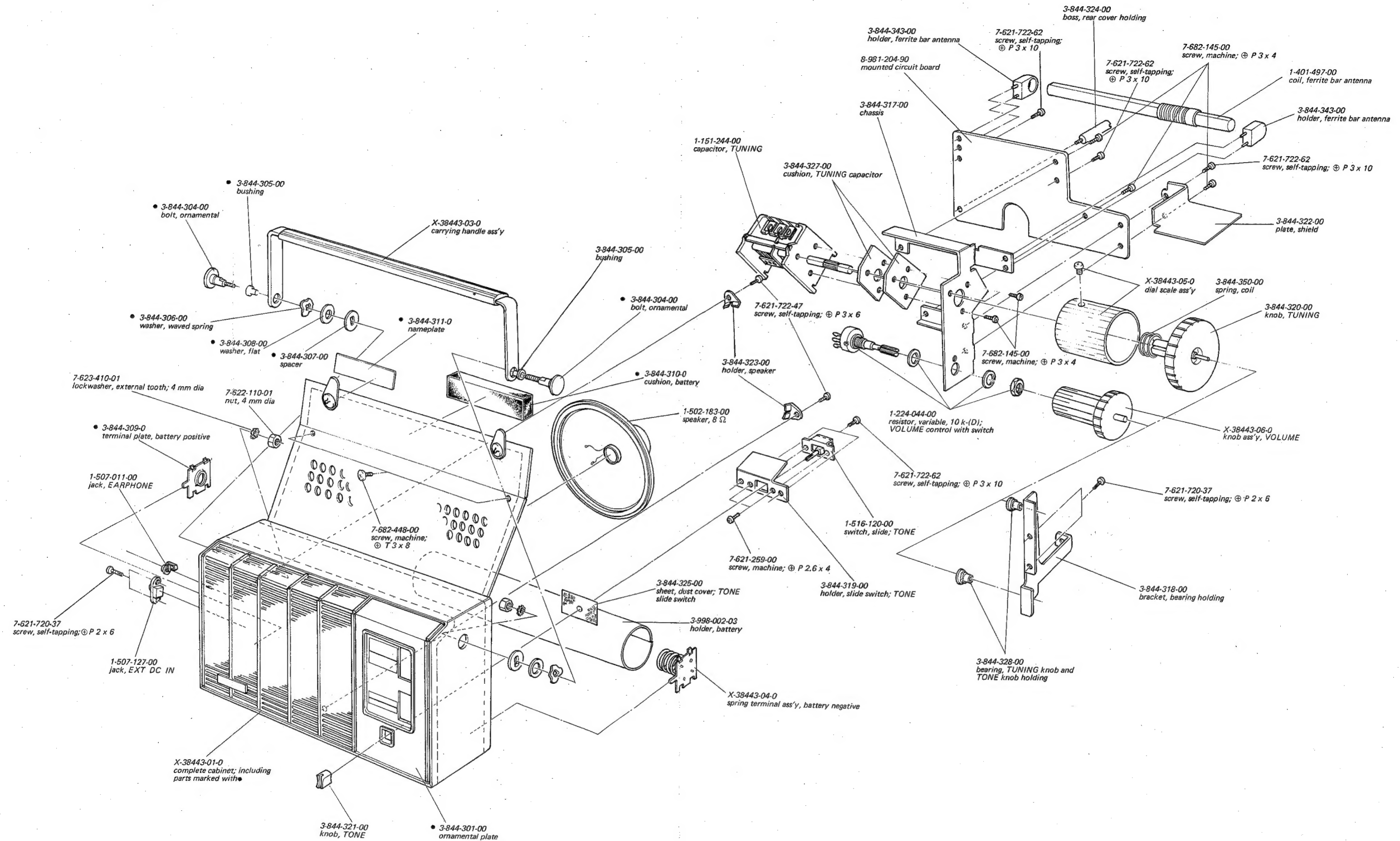


Fig. 5-1.

5-2. PACKING

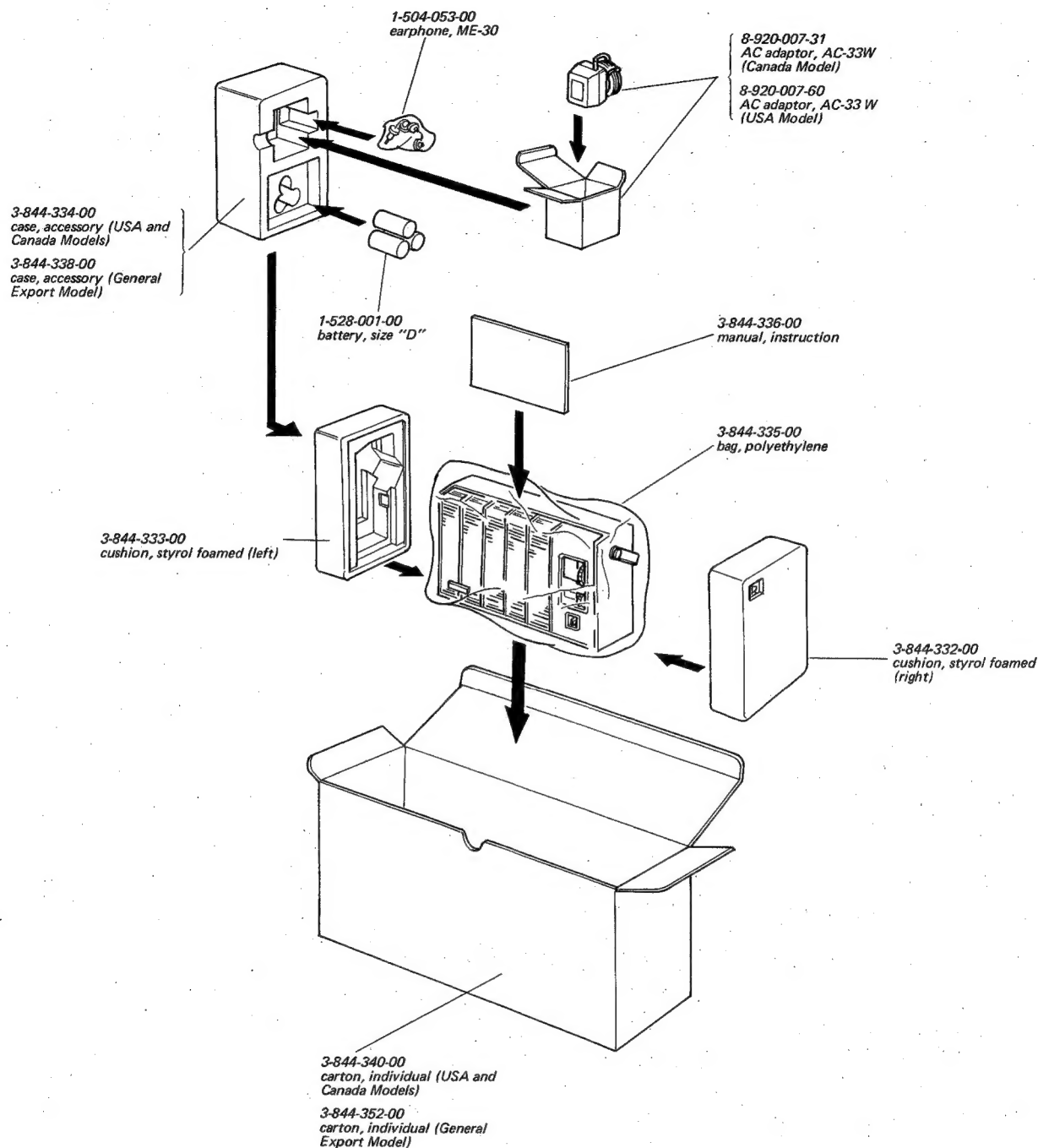


Fig. 5-2.

SECTION 6

ELECTRICAL PARTS LIST

Ref. No. Part No. Description

SEMICONDUCTORS

Q1		transistor	2SC403C
Q2		transistor	2SC403C
Q3		transistor	2SC403C
Q4		transistor	2SC403C
Q5		transistor	2SC403C
Q6		transistor	2SC634A
Q7		transistor	2SC634A
Q8		transistor	2SB324 (with heatsink)
Q9		transistor	2SB324 (with heatsink)
D1		diode	CDG-22
Th	1-800-212-00	thermistor	21D-27

COILS AND TRANSFORMERS

L1	1-401-497-00	coil, ferrite bar antenna
L2	1-425-741-00	coil, rf
L3	1-405-523-00	coil, oscillator
IFT-1	1-403-876-00	transformer, i-f
IFT-2	1-403-875-00	transformer, i-f
IFT-3	1-403-874-00	transformer, i-f
T1	1-423-174-00	transformer, driver
T2	1-427-333-00	transformer, output

CAPACITORS

All fixed capacitors are in μF except as specified with p, which means μF .

C1	1-105-513-12	0.01	mylar
C2	1-105-513-12	0.01	mylar
C3	1-105-513-12	0.01	mylar
C4	1-105-513-12	0.01	mylar
C5	1-105-509-12	0.0047	mylar
C6	1-105-509-12	0.0047	mylar
C7	1-101-954-11	4 p	ceramic
C8	1-121-410-11	33 6.3 V	electrolytic
C9	1-121-510-11	22 6.3 V	electrolytic
C10	1-105-520-12	0.039	mylar
C11	1-105-517-12	0.022	mylar
C12	1-105-520-12	0.039	mylar
C13	1-101-953-11	3 p	ceramic
C14	1-105-513-12	0.01	mylar
C15	1-105-513-12	0.01	mylar
C16	1-121-424-11	470 6.3 V	electrolytic
C17	1-121-394-11	4.7 16 V	electrolytic
C18	1-121-394-11	4.7 16 V	electrolytic
C19	1-105-521-12	0.047	mylar
C20	1-101-421-11	510 p	ceramic
C21	1-105-517-12	0.022	mylar
C22	1-121-510-11	22 6.3 V	electrolytic
C23	1-121-424-11	470 6.3 V	electrolytic

Ref. No. Part No. Description

C24	1-105-513-12	0.01	mylar
C25	1-105-520-12	0.039	mylar
C26	1-121-424-11	470 6.3 V	electrolytic
C27	1-121-419-11	220 6.3 V	electrolytic
CT1-CT3 CV1-CV3	1-151-244-00	capacitor, TUNING	

RESISTORS

All fixed resistors are in Ω , $\pm 5\%$, 1/4 W carbon film type unless otherwise specified.

R1	
R2	1-242-649-11	100
R3	1-242-673-11	1 k
R4	1-242-697-11	10 k
R5	1-242-715-11	56 k
R6	1-242-675-11	1.2 k
R7	1-242-731-11	270 k
R8	1-242-673-11	1 k
R9	1-242-673-11	1 k
R10	1-242-649-11	100
R11	1-242-715-11	56 k
R12	1-244-689-11	4.7 k
R13	1-242-649-11	100
R14	1-242-701-11	15 k
R15	1-242-697-11	10 k
R16	1-242-669-11	680
R17	1-242-673-11	1 k
R18	1-244-649-11	100
R19	
R20	
R21	1-242-717-11	68 k
R22	1-242-691-11	5.6 k
R23	1-242-653-11	150
R24	1-242-667-11	560
R25	1-242-629-11	15
R26	1-242-697-11	10 k
R27	1-242-649-11	100
R28	1-242-649-11	100
R29	1-242-679-11	1.8 k
R30	1-244-805-11	1.5 1/2 W
R31	1-242-661-11	330
VR1	1-224-044-00	resistor, variable, 10 k-(D); VOLUME control with switch

MISCELLANEOUS

	8-981-204-90	mounted circuit board
SP	1-502-183-00	speaker, 8 Ω
J1	1-507-011-00	jack, EARPHONE
J2	1-507-127-00	jack, EXT DC IN
S2	1-516-120-00	switch, slide; TONE

SONY CORPORATION

SONY®

NEW

Complete Spare Parts List

Model **TR-6400**

GENERAL EXPORT MODEL

U. S. A. MODEL

CANADA MODEL

"IMPORTANT"

When ordering parts, please do not fail to furnish us the following:

1. Part Number
2. Model Name
3. Description as mentioned in this parts list

We are now using EDPS (Electronic Data Processing System) in all the departments concerned, for procurement, inventory control, packing, warehousing, etc. Your orders are processed mainly from the PART NUMBERS referred by you. Incorrect part numbers, therefore, will result in incorrect parts shipment. To assure prompt shipment of correct parts, your cooperation will be appreciated.

NOTE:

Prices are subject to change without notice.

SONY CORPORATION

COMPLETE SPARE PARTS LIST FOR TR-6400

(General Export Model)
 (USA Model)
 (Canada Model)

MAY, 1972

<u>Part No.</u>	<u>Description</u>	<u>Unit Price</u>
<u>A. MECHANICAL PARTS</u>		
X-38443-01-0	Complete Cabinet; including -----	\$2.62
X-38443-02-0	Cabinet Ass'y -----	1.55
X-38443-03-0	Carrying Handle Ass'y -----	0.39
X-38443-04-0	Spring Terminal Ass'y, battery negative -----	0.04
3-844-301-00	Ornamental Plate -----	0.16
3-844-304-00	Bolt, ornamental -----	0.10
3-844-305-00	Bushing -----	0.01
3-844-306-00	Washer, waved spring -----	0.01
3-844-307-00	Spacer -----	0.01
3-844-308-00	Washer, flat -----	0.01
3-844-309-00	Terminal Plate, battery positive -----	0.02
3-844-310-00	Cushion, battery -----	0.01
3-844-311-00	Nameplate -----	0.01
X-38443-05-0	Dial Scale Ass'y -----	0.11
X-38443-06-0	Knob Ass'y, VOLUME -----	0.17
	* * *	
3-844-316-00	Indication Plate, EARPHONE/EXT DC -----	0.03
3-844-317-00	Chassis -----	0.12
3-844-318-00	Bracket, bearing holding -----	0.08
3-844-319-00	Holder, slide switch; TONE -----	0.07
3-844-320-00	Knob, TUNING -----	0.12
3-844-321-00	Knob, TONE -----	0.06
3-844-322-00	Plate, shield -----	0.10
3-844-323-00	Holder, speaker -----	0.01
3-844-324-00	Boss, rear cover holding -----	0.02
3-844-325-00	Sheet, dust cover; TONE slide switch -----	0.01
3-844-327-00	Cushion, TUNING capacitor -----	0.02
3-844-328-00	Bearing, TUNING knob and TONE knob holding -----	0.03
3-844-342-00	Plate, shield -----	0.01
3-844-343-00	Holder, ferrite bar antenna -----	0.01
3-844-350-00	Spring, coil -----	0.02

<u>Ref.</u> <u>No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Unit</u> <u>Price</u>
B. <u>SCREWS, NUTS, WASHERS</u> <u>& MISCELLANEOUS</u>			(Per 100)
	7-621-259-00	Screw, machine; (+) P 2.6 x 4 -----	\$0.20/100
	7-621-720-37	Screw, self-tapping; (+) P 2 x 6 -----	0.22/100
	7-621-722-47	Screw, self-tapping; (+) P 3 x 6 -----	0.25/100
	7-621-722-62	Screw, self-tapping; (+) P 3 x 10 -----	0.29/100
	7-622-110-01	Nut, 4 mm dia -----	0.30/100
	7-623-410-01	Lockwasher, external tooth; 4 mm dia -----	0.31/100
	7-682-145-00	Screw, machine; (+) P 3 x 4 -----	0.23/100
	7-682-448-00	Screw, machine; (+) T 3 x 8 -----	0.25/100

C. ELECTRICAL PARTS

Semiconductors

Q1		Transistor, 2SC403C -----	0.12
Q2		Transistor, 2SC403C -----	0.12
Q3		Transistor, 2SC403C -----	0.12
Q4		Transistor, 2SC403C -----	0.12
Q5		Transistor, 2SC403C -----	0.12
Q6		Transistor, 2SC634A -----	0.12
Q7		Transistor, 2SC634A -----	0.12
Q8		Transistor, 2SB324 (with heatsink) -----	0.18
Q9		Transistor, 2SB324 (with heatsink) -----	0.18
D1		Diode, CDG-22 -----	0.04
Th	1-800-212-00	Thermistor, 21D-27 -----	0.03

Coils and Transformers

L1	1-401-497-00	Coil, ferrite bar antenna -----	0.24
L2	1-425-741-00	Coil, rf -----	0.10
L3	1-405-523-00	Coil, oscillator -----	0.10
IFT-1	1-403-876-00	Transformer, i-f -----	0.11
IFT-2	1-403-875-00	Transformer, i-f -----	0.11
IFT-3	1-403-874-00	Transformer, i-f -----	0.11
T1	1-423-174-00	Transformer, driver -----	0.14
T2	1-427-333-00	Transformer, output -----	0.17

2/5 (TR-6400 General Export, USA and Canada Models)

(R6-44)

Ref. No.	Part No.	Description	Unit Price
<u>Capacitors</u>			
(All fixed capacitors are in μ F except as specified with p, which means μ F.)			
C1	1-105-513-12	0.01 mylar -----	\$0.02
C2	1-105-513-12	0.01 mylar -----	0.02
C3	1-105-513-12	0.01 mylar -----	0.02
C4	1-105-513-12	0.01 mylar -----	0.02
C5	1-105-509-12	0.0047 mylar -----	0.02
C6	1-105-509-12	0.0047 mylar -----	0.02
C7	1-101-954-11	4 p ceramic -----	0.02
C8	1-121-410-11	33 6.3 V electrolytic -----	0.03
C9	1-121-510-11	22 6.3 V electrolytic -----	0.03
C10	1-105-520-12	0.039 mylar -----	0.02
C11	1-105-517-12	0.022 mylar -----	0.02
C12	1-105-520-12	0.039 mylar -----	0.02
C13	1-101-953-11	3 p ceramic -----	0.02
C14	1-105-513-12	0.01 mylar -----	0.02
C15	1-105-513-12	0.01 mylar -----	0.02
C16	1-121-424-11	470 6.3 V electrolytic -----	0.08
C17	1-121-394-11	4.7 16 V electrolytic -----	0.03
C18	1-121-394-11	4.7 16 V electrolytic -----	0.03
C19	1-105-521-12	0.047 mylar -----	0.02
C20	1-101-421-11	510 p ceramic -----	0.02
C21	1-105-517-12	0.022 mylar -----	0.02
C22	1-121-510-11	22 6.3 V electrolytic -----	0.03
C23	1-121-424-11	470 6.3 V electrolytic -----	0.08
C24	1-105-513-12	0.01 mylar -----	0.02
C25	1-105-520-12	0.039 mylar -----	0.02
C26	1-121-424-11	470 6.3 V electrolytic -----	0.08
C27	1-121-419-11	220 6.3 V electrolytic -----	0.07
CT1-CT3 CV1-CV3	1-151-244-00	Capacitor, TUNING -----	0.99

3/5 (TR-6400 General Export, USA and Canada Models)

(R6-44)

<u>Ref.</u> <u>No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Unit</u> <u>Price</u>
<u>Resistors</u>			
(All fixed resistors are in Ω , $\pm 5\%$, 1/4 W carbon film type unless otherwise specified.)			
R1	-	-	-
R2	1-242-649-11	100 -----	\$0.02
R3	1-242-673-11	1 k -----	0.02
R4	1-242-697-11	10 k -----	0.02
R5	1-242-715-11	56 k -----	0.02
R6	1-242-675-11	1.2 k -----	0.02
R7	1-242-731-11	270 k -----	0.02
R8	1-242-673-11	1 k -----	0.02
R9	1-242-673-11	1 k -----	0.02
R10	1-242-649-11	100 -----	0.02
R11	1-242-715-11	56 k -----	0.02
R12	1-244-689-11	4.7 k -----	0.02
R13	1-242-649-11	100 -----	0.02
R14	1-242-701-11	15 k -----	0.02
R15	1-242-697-11	10 k -----	0.02
R16	1-242-669-11	680 -----	0.02
R17	1-242-673-11	1 k -----	0.02
R18	1-244-649-11	100 -----	0.02
R19	-	-	-
R20	-	-	-
R21	1-242-717-11	68 k -----	0.02
R22	1-242-691-11	5.6 k -----	0.02
R23	1-242-653-11	150 -----	0.02
R24	1-242-667-11	560 -----	0.02
R25	1-242-629-11	15 -----	0.02
R26	1-242-697-11	10 k -----	0.02
R27	1-242-649-11	100 -----	0.02
R28	1-242-649-11	100 -----	0.02
R29	1-242-679-11	1.8 k -----	0.02
R30	1-244-805-11	1.5 1/2 W -----	0.02
R31	1-242-661-11	330 -----	0.02
VR1	1-224-044-00	Resistor, variable, 10 k-(D); VOLUME control with switch -----	0.20

4/5 (TR-6400 General Export, USA and Canada Models)

(R6-44)

<u>Ref.</u> <u>No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Unit</u> <u>Price</u>
		<u>Miscellaneous</u>	
	8-981-204-90	Mounted Circuit Board -----	\$4.24
SP	1-502-183-00	Speaker, 8 Ω -----	0.49
J1	1-507-011-00	Jack, EARPHONE -----	0.05
J2	1-507-127-00	Jack, EXT DC IN -----	0.12
S2	1-516-120-00	Switch, slide; TONE -----	0.14

D. ATTACHED ITEMS

1-504-053-00	Earphone, ME-30 -----	0.10
1-528-001-00	Battery, size "D" -----	
3-793-105-06	List, warranty station (Canada Model) -----	0.04
3-844-332-00	Cushion, styrol foamed (right) -----	0.08
3-844-333-00	Cushion, styrol foamed (left) -----	0.08
3-844-334-00	Case, accessory (USA and Canada Models) -----	0.04
3-844-335-00	Bag, polyethylene -----	0.01
3-844-336-00	Manual, instruction -----	0.05
3-844-337-00	Printed Matters (USA and Canada Models) -----	0.01
3-844-338-00	Case, accessory (General Export Model) -----	0.04
3-844-339-00	Carton, master (USA and Canada Models) -----	0.52
3-844-340-00	Carton, individual (USA and Canada Models) --	0.17
3-844-351-00	Carton, master (General Export Model) -----	0.52
3-844-352-00	Carton, individual (General Export Model) ---	0.17
3-844-353-00	Printed Matters (General Export Model) -----	0.01
3-844-354-00	Warranty Registration (Canada Model) -----	0.04
3-994-390-15	Warranty Card (USA Model) -----	0.01
3-998-002-03	Holder, battery -----	0.08
3-920-007-31	AC Adaptor, AC-33W (Canada Model) -----	1.57
8-920-007-60	AC Adaptor, AC-33W (USA Model) -----	1.51

5/5 (TR-6400 General Export, USA and Canada Models)

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